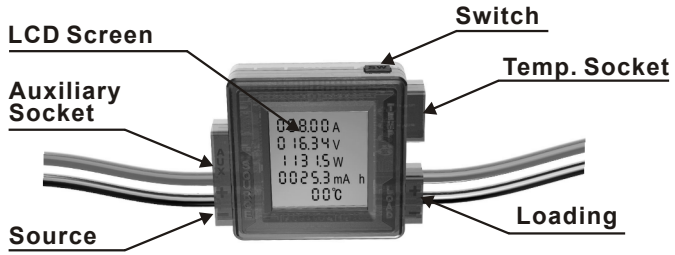
WATT METER WM-010

SKYRC

INSTRUCTION MANUAL

INTRODUCTION

Thank you for purchasing the Watt Meter WM-010. We are confident you will find it to be an indispensable tools you use to make your hobby more funs and enjoyable.



FEATURES

- Measures energy (Wh), charge (Ah), power (W), current (A) and voltage (V)
- Measures peak Amps, peak Watts ,voltage minimum (sag), peak temperature.
- Measures temperature in both Celsius & Fahrenheit (optional temperature probe is necessary)
- Auxiliary battery to power watt meter for measurement down to 0V
- Accurate & precise – 0.01 A current and 0.01V voltage resolutions
- Rugged – handles 50 A continuous and 100 A peak at 60V
- Small & light with a tough plastic case
- Precision Alu-Chrom current sensing resistor, with only 0.001 Ohms resistance
- Factory calibration stores constants in EEPROM to compensate for component tolerances

SPECIFICATIONS

Parameter	Range or Value	Resolution
Voltage	0-60V (*1)	0.01V
Current	0-100A peak (*2)	0.01A
Power	0-6000 W	0.1W
Charge	0-65Ah	0.1mAh
Energy	0 - 6554 Wh	0.1Wh
Temperature	0 - 150℃/32℉-302℉	1℃/1℉
Auxiliary Power	4.0 V - 60 V	
Dimensions	51.3X42.9X13.7mm	
Net Weight	42g/1.48oz	
Display	26.5x28.5mm LCD	

(*1) 0V minimum with auxiliary power

(*2) 50A continuous, 100A peak, assumes device's wires are in free air and attached to connections at or below temperature of 35 flow.
100A operation time depends on ambient temperature and wiring temperature.

SAFETY PRECAUTIONS

CAUTIONS: High power electrical systems pose dangers independent of devices like the Watt Meter and it is the user's responsibility to be familiar with these dangers and take any necessary action to ensure safe use. Shorting a rechargeable battery or a Watt Meter connected to a rechargeable battery or battery charger can supply huge currents and have serious consequences including explosions, causing fire, damage to equipment and personal injury.

There are risks associated with the potentially high currents measured by the Watt Meter. These include, but are not limited to, fire, burns and personal injury.

The user must be familiar with the relevant methods, procedures and connection components before using or making any connection. It is suggested that any connectors and wires chosen for use be appropriately sized and rated for the intended application and attached in the manner recommended by their respective manufacturers. Poor connections and reckless wire handling in electrical systems may have serious consequences. Intermittent and loose connections can cause component damage!

Safe Operation Limitations

The Watt Meter is designed to be safe to use when operated within the parameter limits it was designed for. Typical applications are well within these limits, but it is the users responsibility to be familiar with the Watts Up specifications and ensure the unit is operated within its limits.

Safe Operating Limits (Do Not Exceed)

Parameter	Operating Range	Notes
Voltage	0V-60V	
Current	0-100A intermittent 50A continuous	Assumes devices wires are in free air and attached to connections at or below temperature of 25℃(77℉) with adequate air flow. 100A operation time depends on ambient temperature and wiring temperature.
Nominal Operating Conditions	0-50℃ ambient air temperature, non condensing humidity	Maximum temperature must be reduced at maximum current rating

***CAUTION*: *Exceeding these limits may permanently damage the Watt Meter and may cause personal injury and may cause fire*.**

LCD screen may turn dark black due to the heat generate by continue use of Watt Meter. Please turn off loading and wait for few minutes. The LCD screen will turn visible again

APPLICATION

Watt Meter measures current, voltage, peak current (Amps), peak power (Watts), minimum voltage (Volts), power (Watts), energy (Watt-hours), charge (Amp-hours) and temperature, peak temperature values for you, in real-time, for the circuit in which you connect it

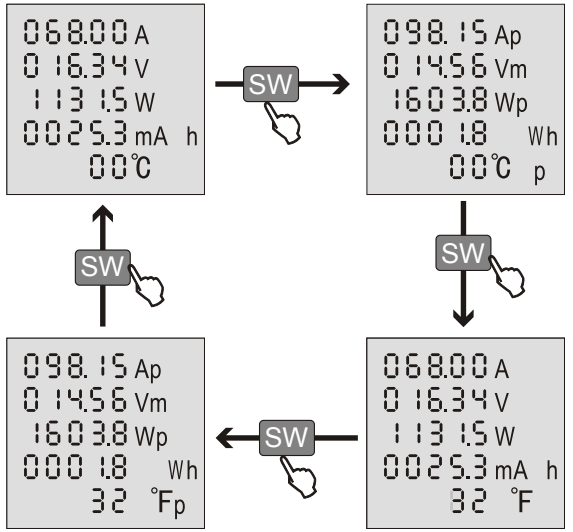
Now you can stop wondering what' s going on with your electric model and get answers that allow you to apply science to your hobby. The precise measurements you collect will help you fine tune your model to get all the performance that you paid for.

With watt meter function, it is now easy to determine things like:

- Current through an ESC and motor
- The temperature & peak temperatures of ESC, motor
- Estimate battery's running time for car or airplane
- ESC, BEC and motor efficiencies
- Charge put into and discharge from a battery
- Presence of peak currents that can damage components
- Presence of voltage sags that cause components to operate out of specification
- Why power is lost during acrobatics or extreme conditions
- Effect of gearing and propeller size and shape on power consumption and battery currents

Clever hobbyists will discover new applications to further improve electric model performance.

Pressing 'SW' button to show different parameter

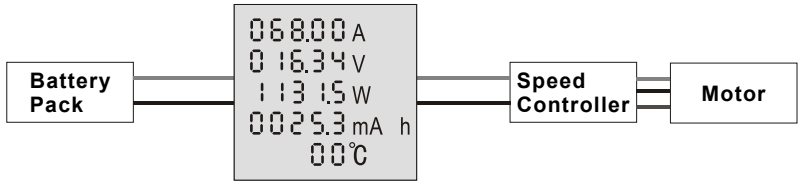


Ap=Peak Amps
Vm=Min Volts(Sag)
Wp=Peak Watt
Wh=Watt hours
℃p=Peak Temp. (Celsius)
℉p=Peak Temp. (Fahrenheit)

A=Ampere
V=Volt
W=Watt
mAh=Charge
℃=Celsius
℉=Fahrenheit

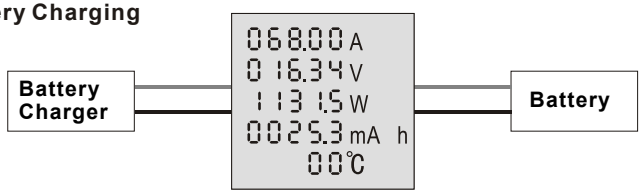
The following are some example Watt Meter connections. Many other arrangements and uses are possible.

Testing Loads(e.g.motors)



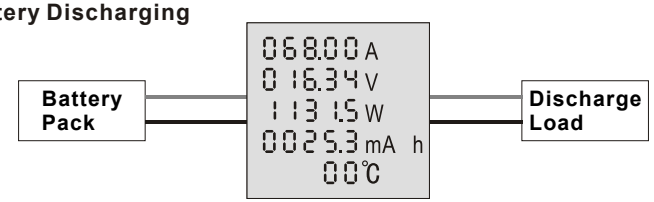
Battery on SOURCE side, Electronic Speed Controller (ESC) and motor on LOAD side, with ESC on, the meter shows the current into the motor, voltage and power at the battery and accumulates the charge (mAh) while the motor is running.

Battery Charging



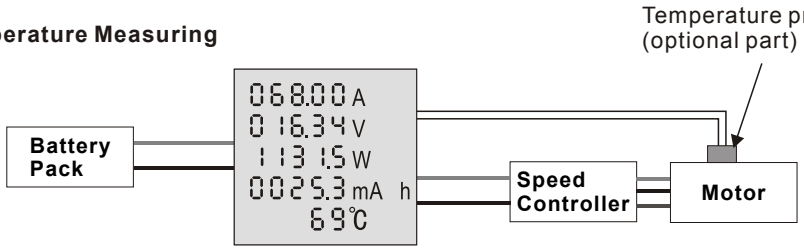
With a battery charger on the SOURCE side and battery pack on the LOAD side, the meter shows the charging current into the battery, the voltage and charging power at the battery and accumulate the charge (mAh) into the battery.

Battery Discharging



When the battery is discharged, the meter indicates the total charge (Ah) the battery delivered to the load as well as current, voltage and discharging power.。

Temperature Measuring



WARRANTY & SERVICE

We guarantee this product to be free of manufacturing and assembly defects for a period of one year from the time of purchase. The warranty only applies to material or operational defects, which are present at t he time of purchase. During that period, we will repair or replace free of service charge for products deemed defective due to those causes.
You will be required to produce proof of purchase (invoice or receipt). This warranty is not valid for any damage or subsequent damage arising as a result of misuse, modification or as a result of failure to observe the procedures outlined in this manual.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

MADE IN CHINA

Manufactured by
SKYRC TECHNOLOGY CO., LTD.
www.skyrc.com
7504-0188-02